BERKUTOV, A.N., professor, polkovnik meditsinskoy sluzhby

Surgical management of wounds in combined injuries. Voen-med. zhur. no.1:17-22 Ja '56 (MLRA 10:5)
(WOUNDS AND INJURIES, surgery, combined inj.) (Rus)

BERKUTOV, A.N., professor; GOLIKOV, G.T.; RYBAKOVA, G.A.

Using bicillin in surgical practice and possibilities of its use in field medicine. Voen.-med.zhur.no.10:32-40 O '56. (MLRA 10:3)
(PENICILLIN) (MEDICINE, MILITARY)

BERKUTOV, A.N., professor, Leningrad, ul. Lebedeva, d. 10-2., kv. t.

Mistakes and complications originating in intraosseous fixation of fractures with a steel pin and methods for preventing them. [with summary in English.p.158] Vest. khir. 77 no.2:51-57 F '56 (MLRA 9:6)

1. Iz kliniki voyenno-polevoy khirurgii (nach. prof. A.N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.

(FRACTURES, surg.
intraosseous fixation with steel rod, mistakes & compl.)

BERKUTOV, A.N., professor (Leningrad, ul. Lebedeva, d. 10-a, kv. 7)

Intramedullary fixation in the treatment of fractures; review of foreign literature. Vest.khir. 77 no.6:104-113 Je '56. (MLRA 9:8)
(FRACTURES, surgery,
intramedullary nailing, review (Rus))

BERKUTOV A.N.

"The Use of Potentiated Anesthetization and Hypothermia in the Treatment of Patients With Severe Traumatic Injuries," by Prof A. N. Berkutov, A. A. Volikov, Candidate of Medical Sciences; and L. A. Smetanin, Clinic of Battlefield Surgery (head, Prof A. N. Berkutov), Military Medical Order of Lenin Academy imeni S. M. Kirov, Vestnik Khirurgii imeni Grekova, Vol 77, No 9, Sep 56, pp 19-28

The authors, basing their conclusion on 96 operations for severe traumatic injuries, think that massive blood transfusion is the best method to overcome the shock of seriously injured patients in third-degree shock, and that neuroplegic drugs combined with local anesthesia and especially potentiated ether-oxygen narcosis and hypothermia are very effective methods for shock treatment.

The more severe the condition of the patient and the more prolonged the surgical intervention is to be, the more one is forced to resort to potentiated ether-oxygen intratracheal anesthesia.

Hypothermia is best applied in cases of extremely severe and extensive injuries and in cases of marked injuries to the respiratory mechanism and hemodynamics. (U)

SUM.1374

BERKUTOV, A.N., professor; GOLIKOV, G.T.; RYBAKOVA, G.A.

Use of bicillin, a slow-acting penicillin preparation. Vest.khir. 77 no.10:67-73 O '56. (MIRA 9:12)

1. Iz kliniki voyenno-polevoy khirurgii (nach. - prof. A.N.Berkutov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M.Kirova. Leningrad, Pirogovskaya naberezhnaya, 3, klinika voyenno-polevoy khirurgii VMOLA im. S.M.Kirova.

(PENICILLIN, rel. cpds.
benzathine penicillin G, ther. of wds., local admin.)
(WOUNDS AND INJURIES, ther.
benzathine penicillin G, local admin.)

BERKUTOV, A.N., polkovnik med. sluzhby, prof.; VOLIKOV, A.A., podpolkovnik med. sluzhby, kand. med. nauk; SMETANIN, L.A., mayor med. sluzhby

Potentiated anesthesia and hypothermia under clinical conditions and the possibility of using them under field conditions. Voen. med. zhur. no.1:50-56 Ja '57 (MIRA 12:7)

(ANESTHESIA,
potentiated, in clin. & military field cond. (Rus))
(HYPOTHERMIA,
in surg. in clin. & military field cond. (Rus))
(MEDICINE, MILITARY AND NAVAL,
hypothermia & potentiated anesth. in military clin. & field cond. (Rus))

BERKUTOV, A.N., polkovnik med.sluzhby, prof.; SARKISOV, M.A., dots.

Closed nailing in intramedullary fixation of long bone fractures.
Voen.-med.zhur. no.12:16-19 D '58. (MIRA 12:12)
(FRACTURES, surgery,
closed intramedullary nailing (Rus))

BERKUTOV, A.N., prof.; VOLIKOV, A.A., kand. med. nauk

Potentiated anesthesia in emergency surgery and traumatology. Voen. med. zhur. no.2:26-33 F '59. (MIRA 12:7)

(ANESTHESIA
potentiated anesth. in emergency surg. & traumatol. (Rus))
(WOUNDS AND INJURIES, surg.
anesth., potentiated, in traumatol. (Rus))
(EMERGENCIES
potentiated anesth. in emergency surg. (Rus))

BERKUTOV, A.N., general-mayor meditsinskoy sluzhby, professor;
NURISHCHENKO, K.A., kapitan meditsinskoy sluzhby

Treatment of tetanus with curarelike preparations. Voen.-med. zhur. no. 1:44-48 Ja '60. (MIRA 14:2)
(TETANUS) (CURARELIKE SUBSTANCES)

BERKUTOV, A.N., general-mayor meditsinskoy sluzhby, professor; KURISHCHENKO, K.A., kapitan meditsinskoy sluzhby

Treatment of gunshot wounds with the use of bicillin. Voen.-med. zhur. no.3:40-47 Mr '60. (MIRA 14:1)
(GUNSHOT WOUNDS) (PENICILLIN)

BERKUTOV, A.N., general-mayor meditsinskoy sluzhby, prof.; NURISHCHENKO, K.A., kapitan meditsinskoy sluzhby

Treatment of patients with thermal burns with a biological film cover. Voen.-med. zhur. no.8:44-45 Ag '60. (MIRA 14:7)
(BURNS AND SCALDS) (THROMBIN)
(BLOOD PLASMA) (PENICILLIN) (NOVOCAINE)

BERKUTOV, A.N.

Intra-intestinal feeding of patients with peptic ulcer and some problems of the technic of resection of the stomach. Vest.khim. 34 no.3:51-54 Mr '60. (MIRA 13:12)
(PEPTIC ULCER) (STOMACH --SURGERY)

POLIKARPOV, S.N., dots., otv. red.; BERKUTOV, A.N., prof., red.; GARVIN, L.I., dots., red.; SELEZNEV, S.A., kand. med. nauk, red.; TSURINOVA, Ye.G., doktor med. nauk, red.; SHRAYBER, M.G., prof., red.; KROL', O.G., tekhn. red.

[Shock and terminal states; transactions of a meeting dedicated to the memory of I.I.Dzhanelidze, January 18-20 ianvaria 1960 g. Leningrad, Leningr. nauchno-issl. in-t skoroi pomoshchi, 1960.349 p. (MIRA 15:7)

(SHOCK)

BERKUTOV, A.N., prof.; ANTIPENKO, V.S., kand.med.nauk

Homotransplantation of the skin in radiation sickness. Vest. khir. 85 no.12:41-43 D '60. (MIRA 14:1)

1. Iz kliniki voyenno-polevoy khirurgii (nach. - prof. A.I. Berkutov) Voyenno-meditsinskoy ordena Lenina akadmii im. S.M. Kirova.

(SKIN GRAFTING) (RADIATION SICKNESS)

BERKUTOV, A.N., prof.; IL'YENKOV, S.I., kand.med.nauk

Use of metallic osteosynthesis in multiple (associated) fractures of the bones of the upper extremities. Ortop., travm.i protez. no.7:10-14 '61. (MIRA 14:8)

1. Iz kafedry voyenno-polevoy khirurgii (nach. - prof. A.N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.

(INTERNAL FIXATION IN FRACURES)
(EXTREMITIES, UPPER—FRACTURE)

BERKUTOV, A.N., prof.; IL'YENKOV, S.I.

Treatment of fractures of the olecranon by means of intraosseous fixation with a steel nail. Khirurgiia no.9:21-23 '61. (MIRA 15:5)

1. Iz kafedry voyenno-polevoy khirurgii (nach. - prof. A.N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.

(ELBOW--FRACTURE)

BERKUTOV, A.N., prof.; IL'YENKOV, S.I., kand.med.nauk

Errors and complications in the intramedullary osteosynthesis of fractures of bones of the upper extremity. Nov.khir.arkh. no.4:35-38 '62. (MIRA 15:5)

1. Klinika voyenno-polevoy khirurgii (nachal'nik - prof. A.N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.

(INTERNAL FIXATION IN FRACTURES)
(EXTREMITIES, UPPER—FRACTURES)

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B144/B186

AUTHORS: Berkutov, A. N., Korchanov, L. S., Yaroslavtseva, N. A., Bochagova, D. I.

TITLE: Substitution therapy at the peak of radiation sickness

PERIODICAL: Meditsinskaya radiologiya, no. 11, 1962, 59 - 65

TEXT: The effect of direct blood transfusions on radiation sickness was studied in order to improve the therapy of radiation sickness combined with traumatic or thermal damage. Ten dogs were whole-body irradiated with 350 r (6.3 r/min) and 5 of them were additionally treated with antibiotics. Mobility, food absorption, pulse, respiration, temperature, weight, etc. were observed, ECG's were taken, complete blood counts were made and hemoglobin and prothrombin levels, coagulation time, general protein content, protein fractions. phagocytic activity, and bactericidity of the blood were determined. As soon as the number of leucocytes dropped below 1500 - 1000 per ml, a direct blood transfusion of ~150 ml with minute additions of heparin was made and repeated 3 - 4 times at intervals of 2 - 3 days. All 10 dogs survived whereas 4 of the 5 controls died. The radiation-induced reduction in the phagocytic activity of the leucocytes was

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successfully influenced by direct transfusions, reaching supernormal values (+20 %) after 4 weeks; in the controls a minimum of only 7 % of the initial value was observed after 5 weeks and the initial value was regained after 10 weeks. Antibiotica slightly reduced the phagocytosis. The bactericidity of the blood was evaluated on the basis of the properdin titer in the serum, which hardly changed in the test animals whereas it dropped sharply in the control, becoming nondeterminable after ~ 2 weeks. The experiments prove that direct blood transfusions are a potent means of mitigating and healing radiation sickness. There are 3 figures. The most important English-language reference is: D. K. Sorenson, V. P. Bond, E. P. Cronkite, Radiat. Res., 1960, v. 13, p. 669.

ASSOCIATION: Kafedra voyenno-polevoy khirurgii Voyenno-meditsinskoy ordena Lenina akademii imeni S. M. Kirova (Department of Field Surgery of the "Order of Lenin" Military Medical Academy imeni S. M. Kirov) (Professor A. N. Berkutov, Major-general of the Medical Service, Chairman of Department)

SUBMITTED: February 25, 1962

Card 2/2

BERKUTOV, A.N., prof.; IL'YENKOV, S.I., kand.med.nauk

Technique for intramedullary fixation of clavicle fractures with a steel pin. Klin.khir. no.12:30-33 D '62. (MIRA 16:2)

1. Klinika voyenno-polevoy khirurgii (nachal'nik - prof. A.N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.

(CLAVICLE—FRACTURE) (INTERNAL FIXATION IN FRACTURES)

BERKUTOV, A. N.; IL'YENKOV, S. I.

Late result of surgical treatment of sarcoma of the clavicle (one observation). Vop. onk. 8 no.4:80-83 '62. (MIRA 15:4)

1. Iz kliniki Voyenno-polevoy khirurgii (nach. - prof. A. N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii im. S. M. Kirova. Adres avtorov: Leningrad, Pirogovskaya nab., 3, klinika Voyenno-polevoy khirurgii Voyenno-meditsinskoy ordena Lenina akademii imeni S. M. Kirova.

(CLAVICLE--CANCER)

BERKUTOV, A. N., prof.; IL'YENKOV, S. I., kand. med. nauk

Use of metal osteosynthesis in treating open fractures of the bones of the upper extremity. Khirurgiia 38 no.5:81-85 My '62.

1. Iz kliniki voyenno-polevoy khirurgii (nach. - prof. A. N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii imeni S. M. Kirova.

(EXTREMITIES, UPPER--FRACTURES)
(INTERNAL FIXATION IN FRACTURES)

BULGARIA

BERKUTOV, Prof A.N. [affiliation not given]; TSIBURNYAK, G.N., Candidate in the Medical Sciences (Kandidat na Meditsinskite Nauki); and NURISHTENKO [affiliation not given].

"The Treatment of Tetanus Sufferers with Neurological Devices and Relaxing Drugs."

Sofia, Voenno Meditsinsko Delo, Vol 18, No 5, October 1963, pp 13-21.

Abstract: The authors draw on their experience with 75 cases of tetanus since 1958 to discuss ways of determining the severity of the illness (the shorter the incubation period, the more severe the case will be; the case will be severe if the period elapsing between the first clinical symptoms and the appearance of generalized cramps is less than 48 hours), the need for anti-convulsion therapy, and the development in the last decade of new and more effective drugs for this purpose which will not yield the dangerous and sometime fatal complications known to have been caused in certain cases by the earlier preparations. The authors also suggest that the application of the anti-tetanus serum should be obligatory within the framework of other therapeutic measures.

Four tables, 11 Soviet-bloc references.

1/1

BERKUTOV, A.N., prof. (Leningrad , K-9, Lesnoy pr. d. 4, kv.57); TSYBULYAK, G.N., kand. med. nauk; NURISCCHENKO, K.A.

Treatment of tetanus with neuroplegics and muscle relaxants.
Vest. khir. 91 no.8:27-33 Ag'63 (MIRA 17:3)

BERKUTOV, A.N., prof.; IL'YENKOV, S.I., kand.med. nauk

Experience in the treatment of fractures of the humerus by intraosseous fixation with a steel nail. Vest. khir. 70 no.6:80-83 Je '63 (MIRA 16:12)

1. Iz kliniki voyenno-polevoy khirurgii (nachal'nik - prof. A.N.Berkutov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova. Adres avtorov: Leningrad, Pirogovskaya nab., d.3, klinika voyenno-polevoy khirurgii.

BERKUTOV, A.N., prof.; IL'YENKOV, S.I., kand. med. nauk

Metal osteosynthesis in complicated fractures of the humerus. Sov. Med. 26 no.9:128-130 S '62. (MIRA 17:4)

1. Iz kliniki voyenno-polevoy khirurgii (nachal'nik - prof. A.N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.

BERKUTOV, A.N., prof.; IL'YENKOV, S.I., kand. med. nauk

Treatment of clavicular fractures by the method of intraosseous fixation with a steel nail. Ort. travm. i protez. 23 no.10: 34-38 O '62. (MIRA 17:10)

1. Iz kliniki voyenno-polevoy khirurgii (nachal'nik - prof. A.N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova. Adres avtorov: Leningrad, Pirogovskaya naberezhnaya, d.3. Klinika voyenno-polevoy khirurgii.

BERKUTOV, A.N., prof. (Leningrad, K-9, Lesnoy prospekt 4, kv.57); TABATADZE, K.G.

Experience in the surgical treatment of cardiospasm. Vest. khir. 92 no.1:7-10 Ja '64. (MIRA 17:11)

BERKUTOV, A.N., prof.; KOLOMIYETS, V.P.

Principles of modern treatment in stages of gunshot fractures of tubular bones. Vest. khir. 92 no.5:96-102 My '64.

(MIRA 18:1)

1. Iz kliniki voyenno-polevoy khirurgii (nachal'nik - prof. A.N. Berkutov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova. Adres avtorov: Leningrad, Pirogovskaya nabereshnaya, 3, klinika voyenno-polevoy khirurgii Voyenno-meditsinskoy akademii imeni S.M. Kirova.

BERKUTOV, A.N., general-mayor meditsinskoy sluzhby; KOROBKINA, A.G.; BOGACHOVA, D.I.; ZIMINA, Ye.P.

Direct blood transfusion in the treatment of acute radiation sickness; an experimental study. Voen.-med. zhur. no.2:26-28 '65. (MIRA 18:11)

BERKUTOV, L.F. (Moskva)

Case of mediastinal lipoma. Khirurgiia 39 nn. 9:125 S'63
(MIRA 17:3)

ISLAMBEKOV, R.K., doktor med.nauk; BERKUTOV, T.A., mladshiy nauchnyy sotrudnik

Thyroid gland in healthy subjects and in goiter patients living in endemic foci of Andizhan Province and the Namangan group of districts of the Uzbek SSR. as revealed by data from radio-iodine diagnosis. Med.zhur.Uzb. no.3:19-25 Mr '62.

(MIRA 15:12)

1. Iz laboratorii endemicheskogo zoba i zobnogo otdeleniya Instituta krayevoy eksperimental'noy meditsiny AN UzSSR (dir. - doktor med.nauk G.M.Makhkamov).

(IODINE--ISOTOPES) (UZBEKISTAN--GOITER) (THYROID GLAND)

TSYNOVNIKOV, A.S.; SHEMERYANKIN, B.V.; LIKHOGUB, Ye.P.; MUSTAFIN, F.A.; BERKUTOVA, G.I.

Increasing the charges of coke ovens during leveling. Koks i khim. no.2:19-22 '60. (MIRA 13:5)

1. Vostochnyy uglekhimicheskiy institut (for TSynovnikov, Shemeryankin). 2. Teplotekhstantsiya (for Likhogub). 3. Nizhne-Tagil'skiy metallurgicheskiy kombinat (for Mustafin, Berkutova).
(Nishniy Tagil--Coal--Carbonization)

BERKUTOVA, I. D. and ANDREYEVA, O. S.

"Problems of Labor Hygiene During Work with Uranium Salts in the Industry of Chemical Reactives," paper presented at the Hygiene Section of the AU Conference of Medical Radiology, Moscow, 30 Jan-5 Feb, 1956. Med. Radiol., No.2, 1957

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S/081/61/000/023/034/061
B138/B101

AUTHORS: Rychkov, R. S., Berkutova, I. D., Glukhareva, N. A., Gofman, A. K., Kuznetsova, G. A., Smirnova, N. B.

TITLE: Use of the radioactivation method in analyzing microimpurities in semiconductor materials

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 317, abstract 23K66 (Sb. "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve. SSSR. v. I", M., Gostoptekhizdat, 1961, 267-273)

TEXT: Standard procedures have been developed and tested in practice for the activation analysis of Cu, Sb, Zn, In, Ga, Ta, As, Na, Mn, Cr, Au, W, Fe, La, Br, Co, Se, and other microimpurities in silicon, germanium, graphite, silicon-carbide, quartz, aluminum, aluminum oxide, deionized and distilled water, repeatedly distilled acids, and other substances. The basis of the method is the preliminary gamma spectrometric study of the impurity composition of materials of a given purity. The technology includes a method for decomposing the specimen; evaporating the isotopes of the basic material from total impurities; eliminating microimpurities

Card 1/2

Use of the radioactivation method...

which might interfere with the gamma spectrometric measurements; radiochemical separation of individual impurities into separate measurable samples. [Abstracter's note: Complete translation.]

Card 2/2

MUSTAFIN, F.A.; CHERKASOV, N.Kh.; BERKUTOVA, Ye.I.

Box coking test of coal charges with the addition of blast furnace flue dust. Koks.i khim. no.12:28-29 '62. (MIRA 16:1)

1. Nizhne-Tagil'skiy metallurgicheskiy kombinat.
(Coke--Testing)

BERKUTSKAYA, Yu.I.

Use of physical therapy for hypertonic patients in a polyclinic. Sbor.nauch.-prak.rab.Poliklin.im.F.E.Dzerzh. no.2:94-104 '61. (MIRA 16:4)

(HYPERTENSION) (PHYSICAL THERAPY)

21.150

S/194/62/000/007/048/160
D295/D308

AUTHORS: Zanati, Tibor, Dévay, József, and Berky, Dénes

TITLE: Automatic control device comprising a photoresistor

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1962, abstract 7-2-116 d (Hung. pat., cl. 21e, 28-53, no. 147741, Oct. 15, 1960)

TEXT: A photoelectric relay with photoresistors in the measuring bridge is proposed. The conductivity of the photoresistors varies with light intensity. It also depends on the fluctuation of several physical variables (temperature, pressure, voltage or current) which upset (or restore) the balance of the bridge. The latter energizes a relay which is connected in the circuit of an electron valve or transistor. According to another version, four photoresistors are included in the bridge for operating the device between two limits of the value controlled. The authors give an example of such a controller for controlling the temperature of an electric furnace, where the intensity of illumination of the photoresistors is regulated by flaps fixed on the pointer of a galvanometer which measures

Card 1/2

Automatic control device comprising ... S/194/62/000/007/048/160
D295/D308

the temperature in the electric furnace. [Abstracter's note: Complete translation.]

VB

Card 2/2

ERDEY-GRUZ, Tibor; BERKY, Denes; KAPOSI, Oliver; ROZSONDAI, Bela

Automatic timer for capillary viscosimeters. Magy Kem folyoir 67 no.2:200-203 My '61.

1. Eotvos Lorand Tudomanyegyetem Fizikai Kemiai es Radiologiai Tanszeke, Budapest 2. "Magyar Kemiai Folyoirat" felelos szerkesztoje (for Erdey-Gruz).

ERDEY-GRUZ, Tibor, prof., dr. (Budapest VIII., Puskin u.11-13);
BERKY, Denes (Budapest VIII., Puskin u.11-13);
KAPOSI, Oliver (Budapest VIII., Puskin u.11-13);
ROZSONDAI, Bela (Budapest VIII., Puskin u.11-13)

Automatic timing device for capillary viscosimeters.
Acta chimica Hung 31 no.4:385-392 '62.

1. Lehrstuhl fur Physikalische Chemie und Radiologie der L. Eotvos Universitat, Budapest. 2. "Acta Chimica Academiae Scientiarum Hungaricae" szerkesztő bizottsagi tagja (for Erdey-Gruz).

BERKY, L.

Hygienic problems in the development of villages. Nepegeszsegugy 44 no.4:113-118 Ap '63.

1. Kozlemeny az Orszagos Kozegeszsegugyi Intezet vezugyi osztalyarol.
(RURAL HEALTH) (STATE MEDICINE)

BERKY, Lajos, dr., Jarasi foorbos.(Siofok)

Several questions concerning sanatorial hygiene.
Hepegeszegugy 36 no.6:166-170 June 55.

(SANATORIA
in Hungary, hygienic aspects.)
(HYGIENE
in sanatoria in Hungary.)

BERKY, Lajos, dr. korzeti orvos, Taksony

Problem of communal hygiene in the framework of the socialistic reorganization of agriculture. Nepegeszsegugy 41 no.6:156-160 Je '60.

(STATE MEDICINE)
(RURAL HEALTH)

HUNGARY

BERKY, Lajos, Dr, GLOSZ, Laszlo, Dr; State Public Health Institute (chief director: BAKACS, Tibor, Dr, professor, doctor of veterinary sciences) and Veterinary Medical University Department of Anatomy and Histology (chief: KOVACS, Gyula, Dr, professor, doctor of veterinary sciences) (Orszagos Kozegeszsegugyi Intezet es Allatorvostudomanyi Egyetem Anatomiai es Szovettani Tanszeke).

"The State of Hygiene of the Water Supply of Agricultural Cooperatives in Pest Megye."

Budapest, Magyar Allatorvosok Lapja, Vol 18 No 7, July 63, pages 281-285.

Abstract: [Authors' English summary modified] Local surveys and data from the Department of Water Hygiene of the Public Health Institute of Budapest have been used by the authors to investigate 408 units of 193 cooperative farms out of a total of 430 units in 210 farms, in the district of Pest. It was established that 77.6 per cent of all wells supply subsoil water and only the rest furnish water from protected strata. Of all water supplies, only 27.1 per cent furnish conducted water. Chemical and bacteriological analyses were satisfactory in 22.9 per cent of the dug and 86.2 per cent of the drilled wells. Water of satisfactory quality was furnished by 9.5 per cent of the wells and 7.7 per cent of the chamels which were not surrounded by a protective zone. Among the water supplies yielding water of objectionable quality, 96.7per cent of the wells and 100 per cent of water company wells had no protective zone around them. Human diseases were not encountered

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HUNGARY

Budapest, Magyar Allatorvosok Lapja, Vol 18, No 7, July 1963, pp 281-285.

which could be traced to the contaminations but the possibility of a connection with seven cases of animal disease can not be excluded. The authors recommend that similar studies be carried out in other parts of the country as well. 1 Western, 8 Eastern European references.

BERKY, Lajos, tudomanyos kutato

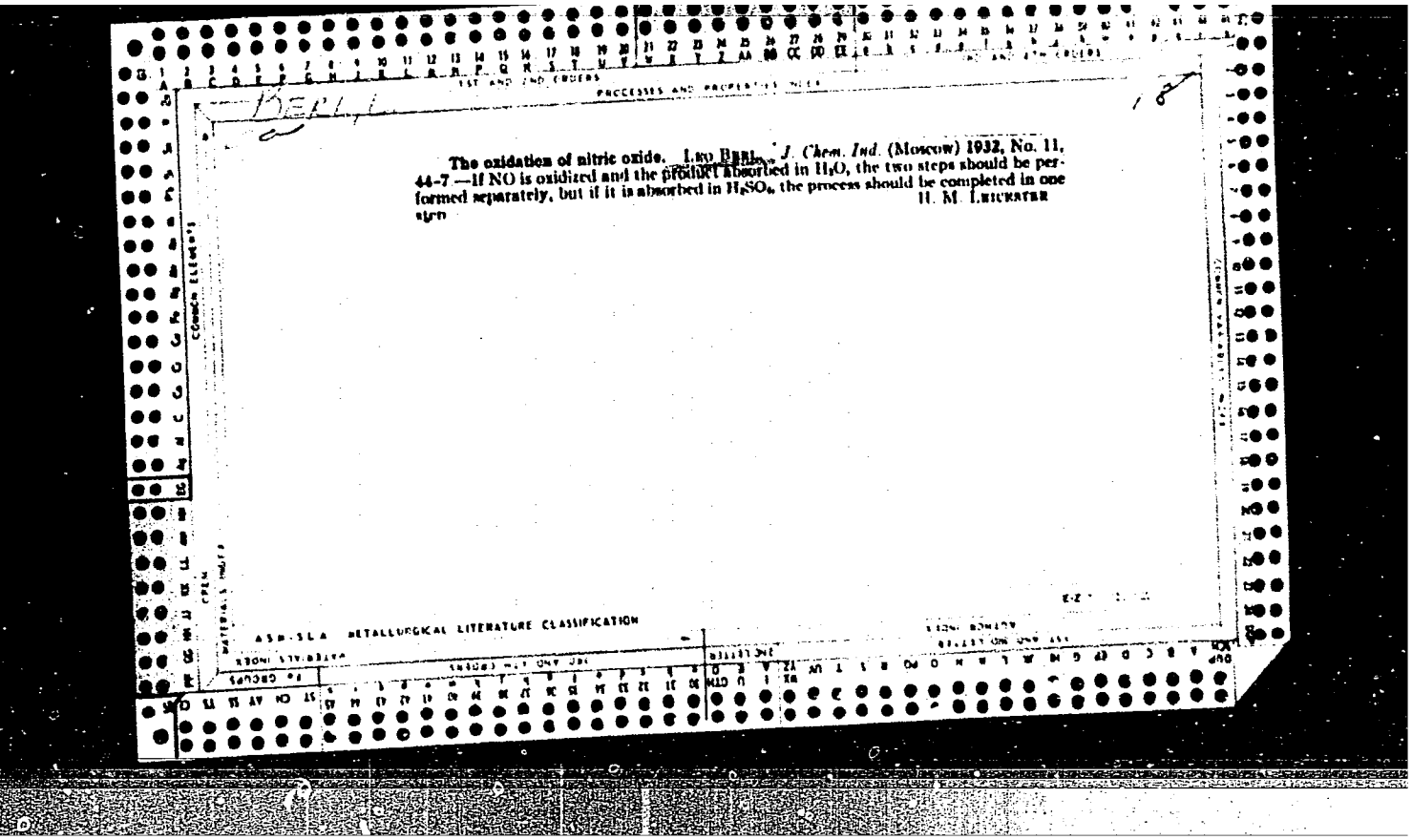
Public health conditions in Mezokovesd District. Borsod szemle 9 no.1:25-35 '65.

BERL, Ernst (ed.)

Chemical and technical methods of research Izd. perer. i dop. Leningrad, Blav. red. khim. lit-ry, 1938. 2 reels. (Mic 53-718) Collation of the original: 3v.

Microfilm TP-13

1. Chemistry, Technical. 2. Chemistry, Analytic.



The oxidation of nitric oxide. Lyo Berl. *J. Chem. Ind.* (Moscow) 1932, No. 11, 44–7.—If NO is oxidized and the product absorbed in H_2O, the two steps should be performed separately, but if it is absorbed in H_2SO_4, the process should be completed in one step. H. M. Leicester

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

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The catalytic burning of ammonia. Leo Betl. *Chem. Ind.* (Moscow) 1934, No. 2, 40-41.—On theoretical grounds the best catalyst should be Al_2O_3 contg. a rather small proportion of Pt. H. M. Leicester

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

A Wear Test Machine for Forward and Back Motion 32-2-41/60

is also investigated according to a method proposed by Professor M. M. Khrushchov with certain changes. It is based on an arrangement where a load of weight is equilibrated with the frictional force. Here an arrangement with a little signal lamp and a millivoltmeter is used. Due to the small size of the instrument tests can be made with increased pressure (up to 10 atmospheres) and in ammonia and frenon surroundings corresponding to the conditions of refrigerating machines. There are 2 figures and 2 references, all of which are Slavic.

ASSOCIATION: Odessa Technological Institute of Food and Refrigeration Industry (Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti)

AVAILABLE: Library of Congress

1. Refrigerant compressors-Test methods

Card 2/2

LIKHNITSKIY, G.V., dotsent; Berlad, V.P., inzh.

Changes in the structure of the surface layers of the friction surface metal occurring in the saturation of the lubricant by refrigerants. Trudy OTIPiKhP 12:143-149 '62. (MIRA 17:1)

1. Kafedra tekhnologii metallov Odesskogo tekhnologicheskogo instituta pishcheboy i kholodil'noy promyshlennosti.

BERLAD, V.P., inzh.

Comparison evaluation of the effect of refrigerants on the wear of the cylinder pair of the refrigeration compressor. Trudy OTIPiKhP 12:150-160 '62. (MIRA 17:1)

1. Kafedra tekhnologii metallov Odesskogo tekhnologicheskogo instituta pishchevoy i kholodil'noy promyshlennosti.

LIKHNITSKIY, G.V., kand. tekhn. nauk; REDENSKIY, B.A., inzh.; BERLAD, V.P., kand. tekhn. nauk

Methods for increasing the wear resistance of the cylinder casing of Freon refrigerating compressors. Khol. tekh. i tekh. no.1:38-44 '65. (MIRA 18:9)

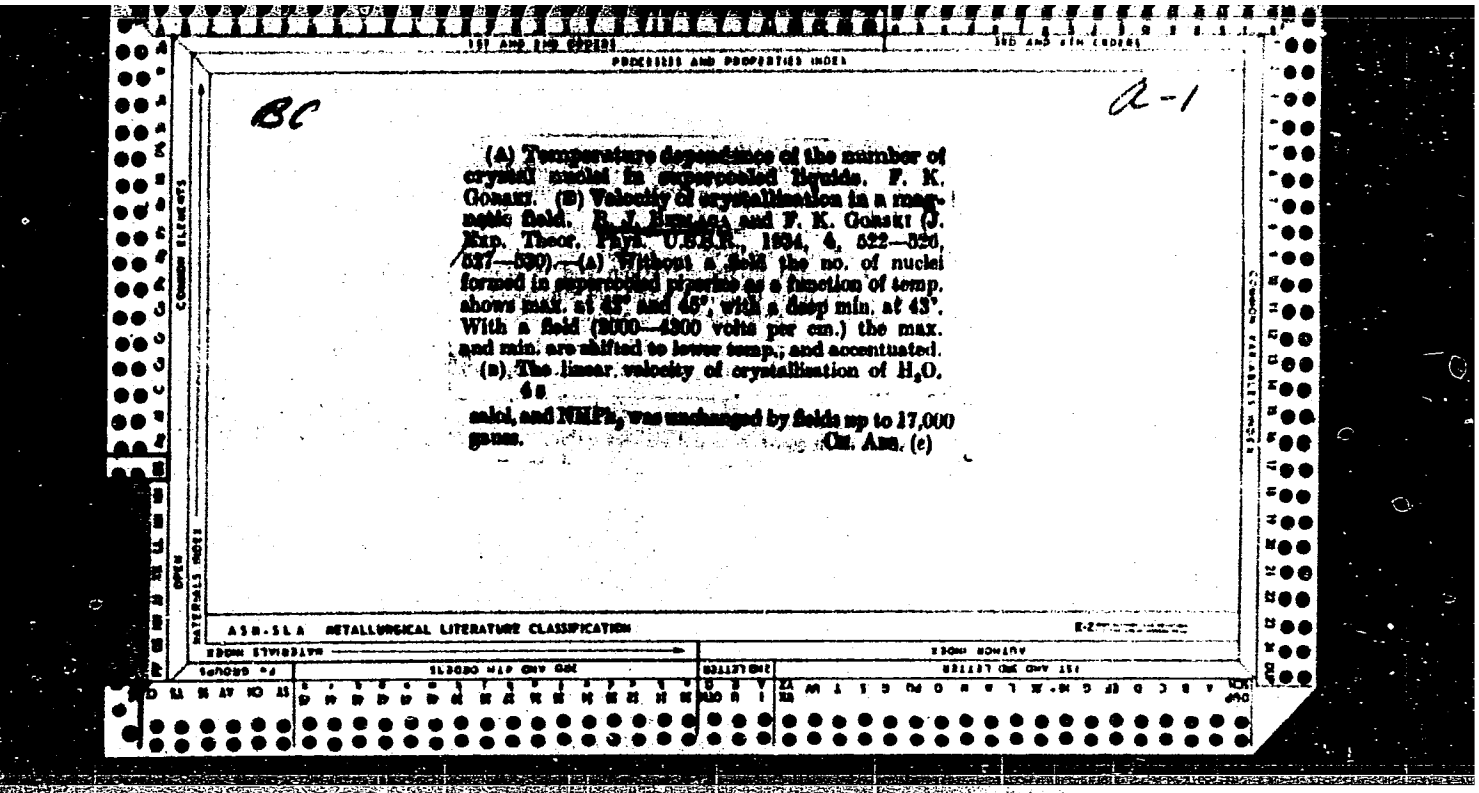
BERLAD, V.P.; LIKHNITSKIY, G.V.

Effect of cooling agents on the microstructure of the surface layers of cast-iron friction couples. Fiz.-khim. mekh. mat. 1 no.5:617-619 '65. (MIRA 19:1)

1. Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti. Submitted Feb. 20, 1965.

BERLADSCHI, M.

Observations, Relative to the Article: Concerning the Text of "The Terminology in Electrical Engineering." ELECTROTEHNICA (Electrical Engineering) #12:568:Dec55

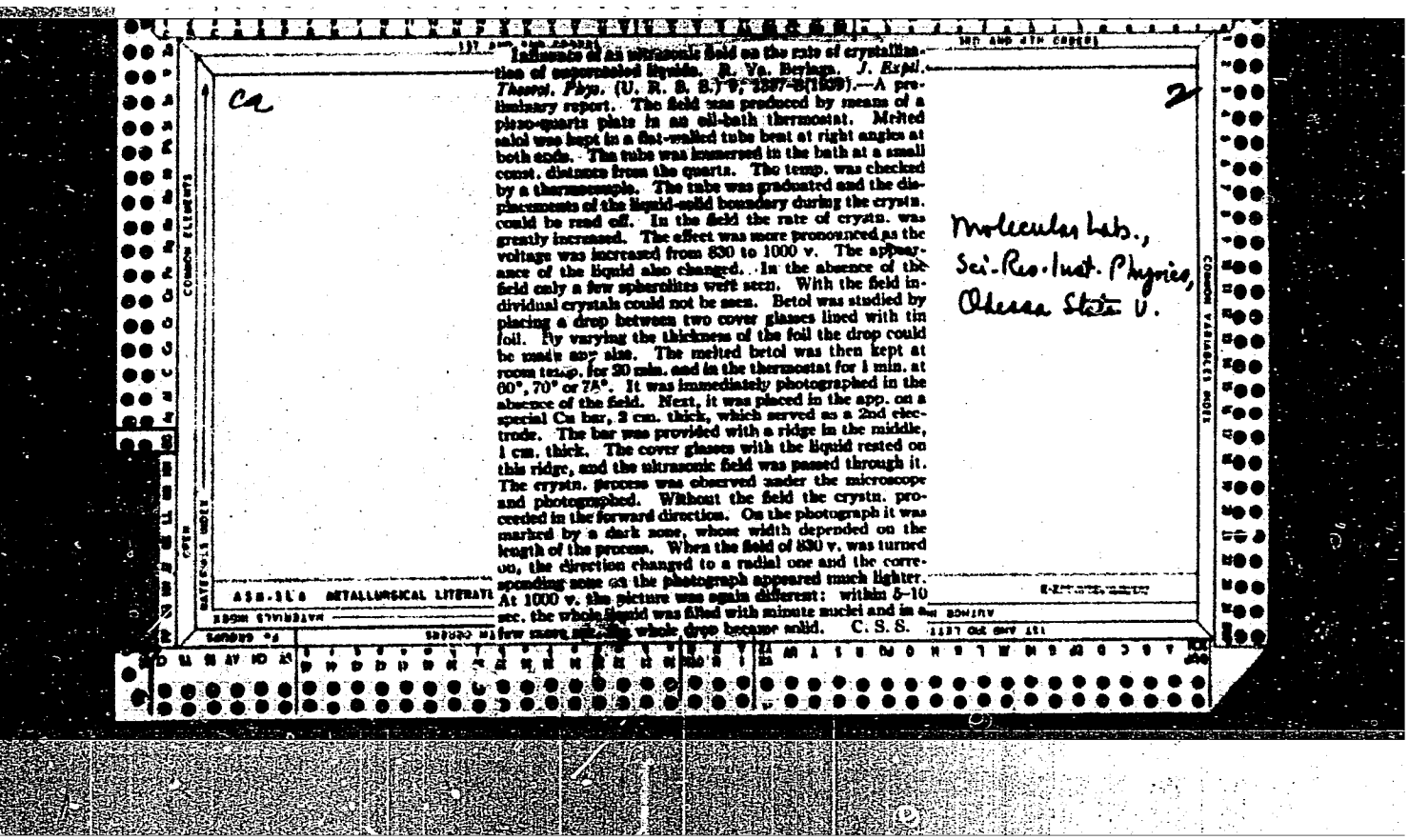


BC

A-1

(A) Temperature dependence of the number of crystal nuclei in supercooled liquids. F. K. Gorskii. (B) Velocity of crystallization in a magnetic field. [illegible] and F. K. Gorskii (J. Exp. Theor. Phys. U.S.S.R., 1934, 4, 522—526, 527—530).—(A) Without a field the no. of nuclei formed in supercooled picrotoxin as a function of temp. shows max. at 45° and 45°, with a deep min. at 43°. With a field (2000—4900 volts per cm.) the max. and min. are shifted to lower temp., and accentuated. (B) The linear velocity of crystallization of H_2O, C_6H_6, and NH_4Br, was unchanged by fields up to 17,000 gauss. Chem. Abs. (e)

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

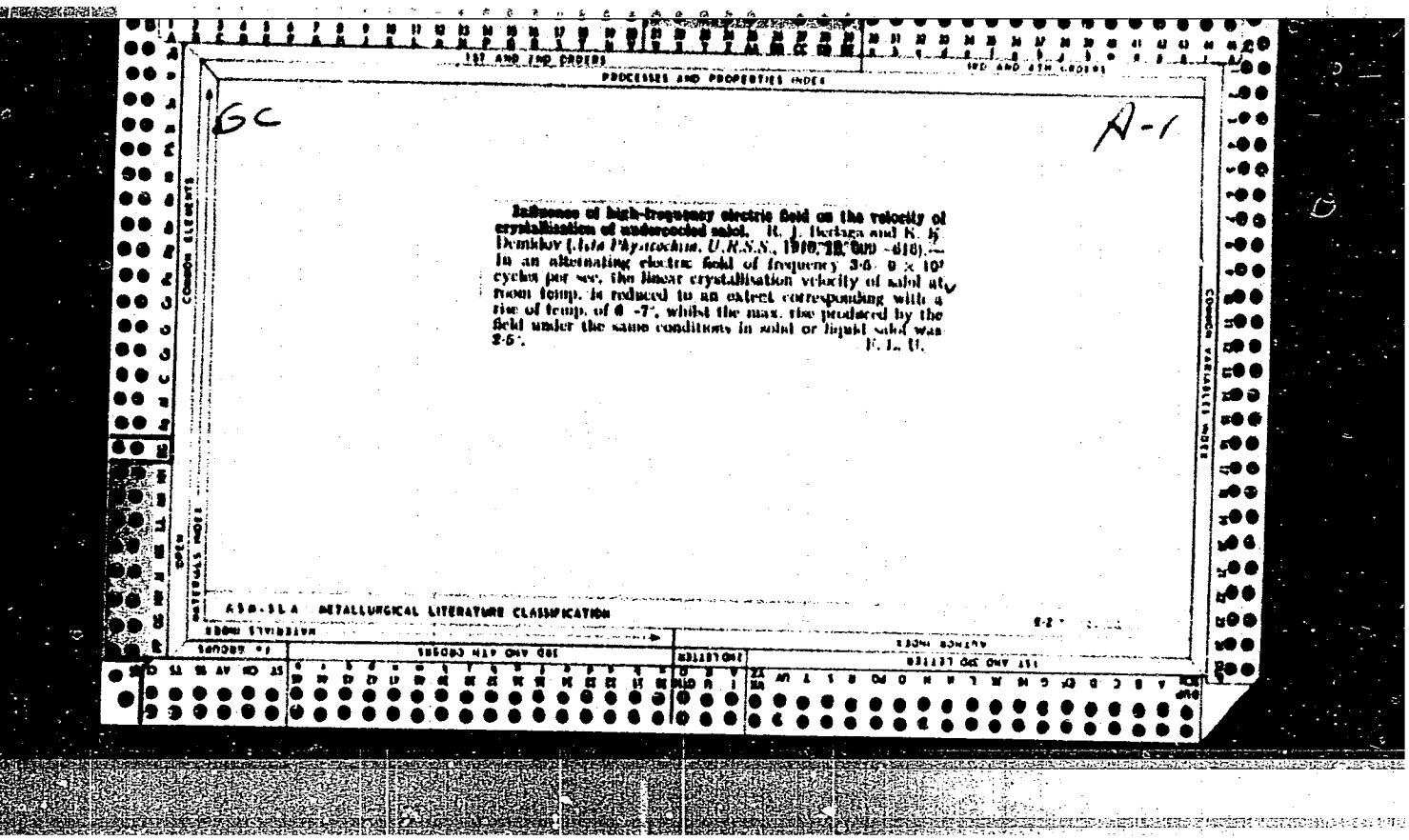


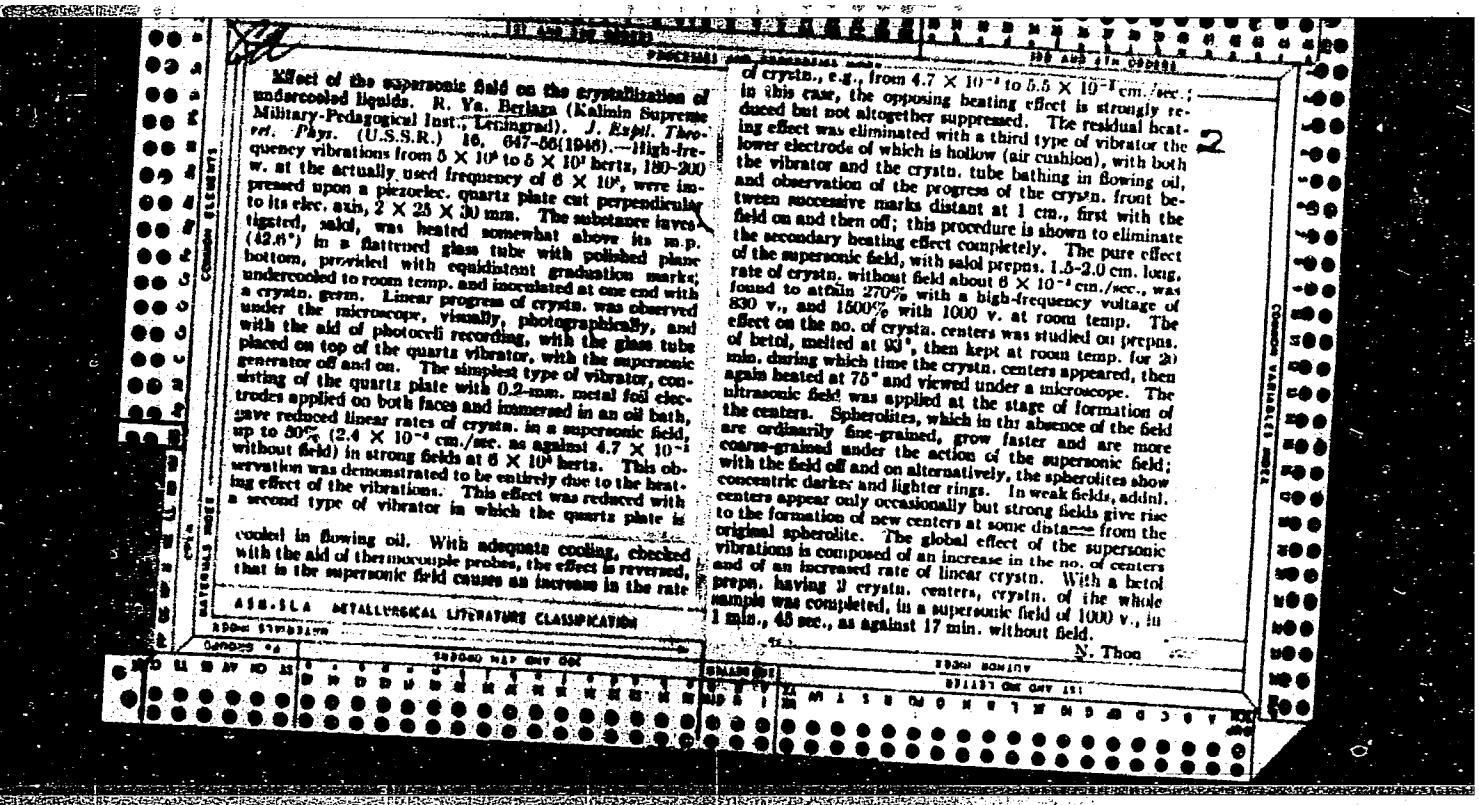
Influence of an ultrasonic field on the rate of crystallization of supercooled liquids. R. Ya. Berlago. *J. Expil. Theoret. Phys.* (U. R. S. S.) 9, 1287-8(1939).—A preliminary report. The field was produced by means of a piezo-quartz plate in an oil-bath thermostat. Melted salol was kept in a flat-walled tube bent at right angles at both ends. The tube was immersed in the bath at a small const. distance from the quartz. The temp. was checked by a thermocouple. The tube was graduated and the displacements of the liquid-solid boundary during the crystn. could be read off. In the field the rate of crystn. was greatly increased. The effect was more pronounced as the voltage was increased from 830 to 1000 v. The appearance of the liquid also changed. In the absence of the field only a few spherolites were seen. With the field individual crystals could not be seen. Betol was studied by placing a drop between two cover glasses lined with tin foil. By varying the thickness of the foil the drop could be made any size. The melted betol was then kept at room temp. for 30 min. and in the thermostat for 1 min. at 60°, 70° or 75°. It was immediately photographed in the absence of the field. Next, it was placed in the app. on a special Cu bar, 2 cm. thick, which served as a 2nd electrode. The bar was provided with a ridge in the middle, 1 cm. thick. The cover glasses with the liquid rested on this ridge, and the ultrasonic field was passed through it. The crystn. process was observed under the microscope and photographed. Without the field the crystn. proceeded in the forward direction. On the photograph it was marked by a dark zone, whose width depended on the length of the process. When the field of 830 v. was turned on, the direction changed to a radial one and the corresponding zone on the photograph appeared much lighter. At 1000 v. the picture was again different: within 5–10 sec. the whole liquid was filled with minute nuclei and in a few more min. the whole drop became solid. C. S. S.

Cu

2

Molecular Lab., Sci.-Res. Inst. Physics, Odessa State U.





Effect of the supersonic field on the crystallization of undercooled liquids. R. Ya. Berlaza (Kalinin Supreme Military-Pedagogical Inst., Leningrad). *J. Exptl. Theoret. Phys.* (U.S.S.R.) 16, 647–56(1946).—High-frequency vibrations from 5×10^5 to 5×10^7 hertz, 180–200 w. at the actually used frequency of 6×10^6, were impressed upon a piezoelec. quartz plate cut perpendicular to its elec. axis, $2 \times 25 \times 30$ mm. The substance investigated, salol, was heated somewhat above its m.p. (42.6°) in a flattened glass tube with polished plane bottom, provided with equidistant graduation marks; undercooled to room temp. and inoculated at one end with a crystn. germ. Linear progress of crystn. was observed under the microscope, visually, photographically, and with the aid of photocell recording, with the glass tube placed on top of the quartz vibrator, with the supersonic generator off and on. The simplest type of vibrator, consisting of the quartz plate with 0.2-mm. metal foil electrodes applied on both faces and immersed in an oil bath, gave reduced linear rates of crystn. in a supersonic field, up to 50% (2.4×10^{-4} cm./sec. as against 4.7×10^{-4} without field) in strong fields at 6×10^6 herts. This observation was demonstrated to be entirely due to the heating effect of the vibrations. This effect was reduced with a second type of vibrator in which the quartz plate is cooled in flowing oil. With adequate cooling, checked with the aid of thermocouple probes, the effect is reversed, that is the supersonic field causes an increase in the rate of crystn., e.g., from 4.7×10^{-4} to 5.5×10^{-4} cm./sec.; in this case, the opposing heating effect is strongly reduced but not altogether suppressed. The residual heating effect was eliminated with a third type of vibrator the lower electrode of which is hollow (air cushion), with both the vibrator and the crystn. tube bathing in flowing oil, and observation of the progress of the crystn. front between successive marks distant at 1 cm., first with the field on and then off; this procedure is shown to eliminate the secondary heating effect completely. The pure effect of the supersonic field, with salol preps. 1.5–2.0 cm. long, rate of crystn. without field about 6×10^{-4} cm./sec., was found to attain 270% with a high-frequency voltage of 830 v., and 1500% with 1000 v. at room temp. The effect on the no. of crystn. centers was studied on preps. of betol, melted at 93°, then kept at room temp. for 20 min. during which time the crystn. centers appeared, then again heated at 75° and viewed under a microscope. The ultrasonic field was applied at the stage of formation of the centers. Spherolites, which in the absence of the field are ordinarily fine-grained, grow faster and are more coarse-grained under the action of the supersonic field; with the field off and on alternatively, the spherolites show concentric darker and lighter rings. In weak fields, addnl. centers appear only occasionally but strong fields give rise to the formation of new centers at some distance from the original spherolite. The global effect of the supersonic vibrations is composed of an increase in the no. of centers and of an increased rate of linear crystn. With a betol prepn. having 2 crystn. centers, crystn. of the whole sample was completed, in a supersonic field of 1000 v., in 1 min., 45 sec., as against 17 min. without field.

N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BERLAGA, R.YA.

"Temperature Dependence of the Photoconductivity of Lead Sulfide Photoconductors"
Vest Leningrad U, Ser Mat, Fiz i Khim, no. 9, 122-131, September 1952

An exposition of results of investigations of temp dependence of photoconductivity in which the dark and light conductivities were studied in interval from -180 to 200°C, in the case of admix PbS semiconductor of specific weight 7.5 g/cm^3 and melting point 1112°C. Describe preparation of specimens, measurement of conductivity and photosensitivity, temp dependence of photoconductivity, and electron-microscopic study of photoconductors. Cite related work of Yu.A. Dunayev, and Yu. P. Maslakovets (Zhur Eksper i Teor Fiziki, vol. 17, no. 10, 1947) and of A.I. Frimer and S.L. Pupko (Zavod Lab, no.11, 1947).

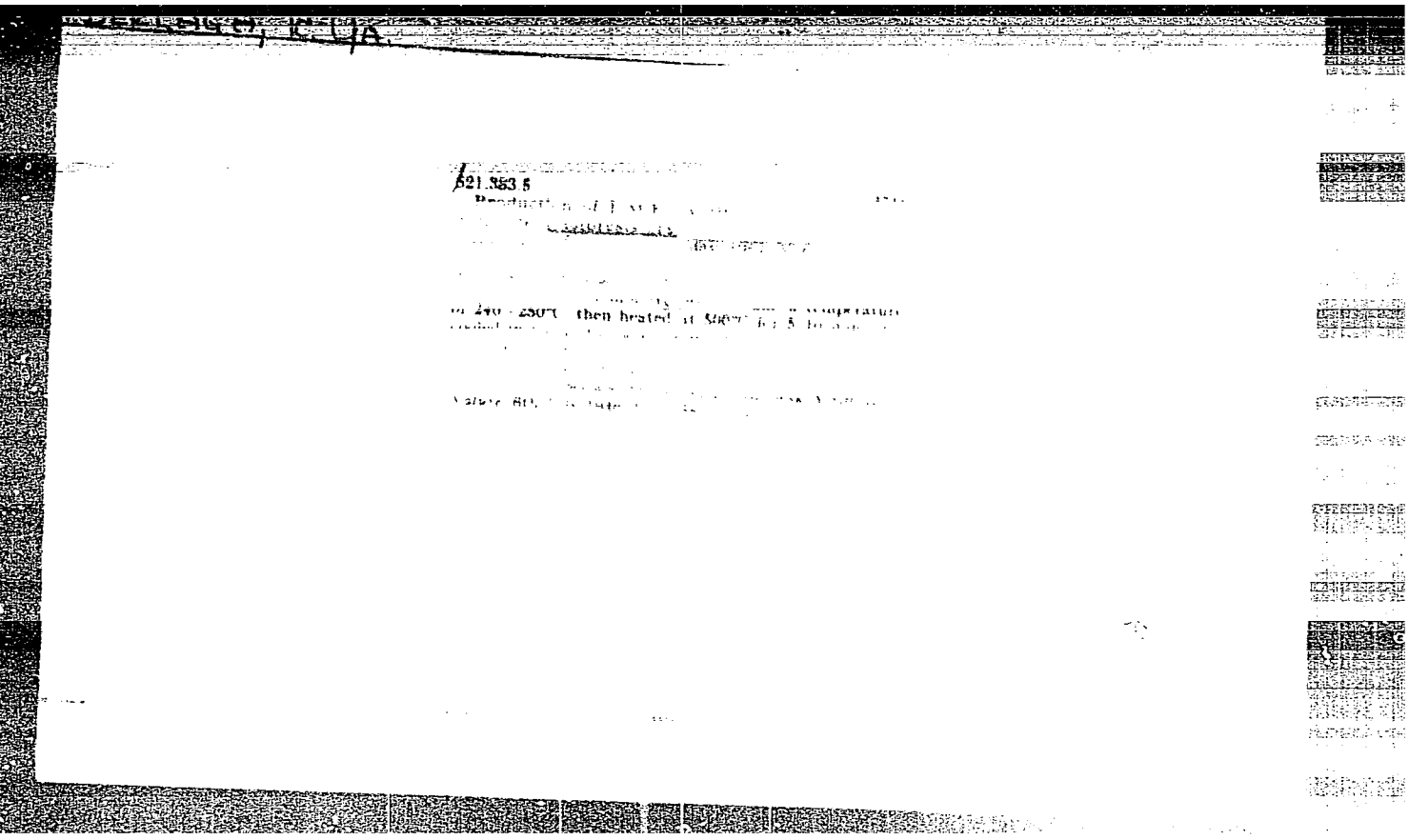
252T104

BERLAGA, R.YA.

"Electromicrographic Investigation of Lead Sulfide Photoconductors"
Vest Leningrad U, Ser Mat, Fiz i Khim, no. 9, 134-136, Sep 1952

Description of a preliminary diffraction study, conducted withan electronograph designed by V.A. Kolpinskiy, on the images of variously prepared non-sensitized and sensitized PbS specimens, which study shows that layers prepared by sublimation of PbS in vacuo possess a crystal structure of the NaCl type with constant a=5.92°A, and that layers of PbS heated in air at 250-300°C for 5-10 min contain also $PbO \cdot PbSO_4$, which increases in relative quantity and crystal size with increasing temperature and sensitizing time.

252T105



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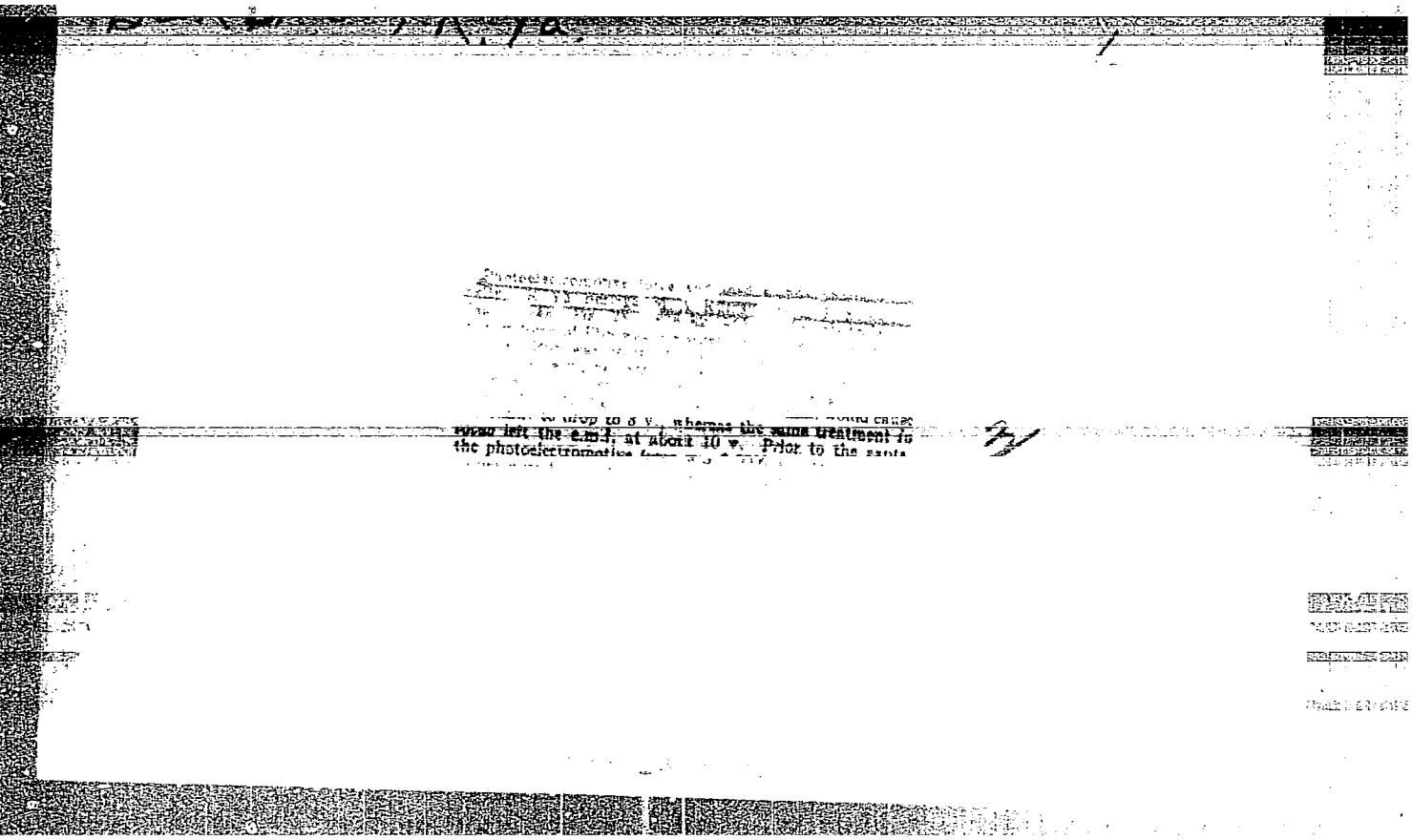

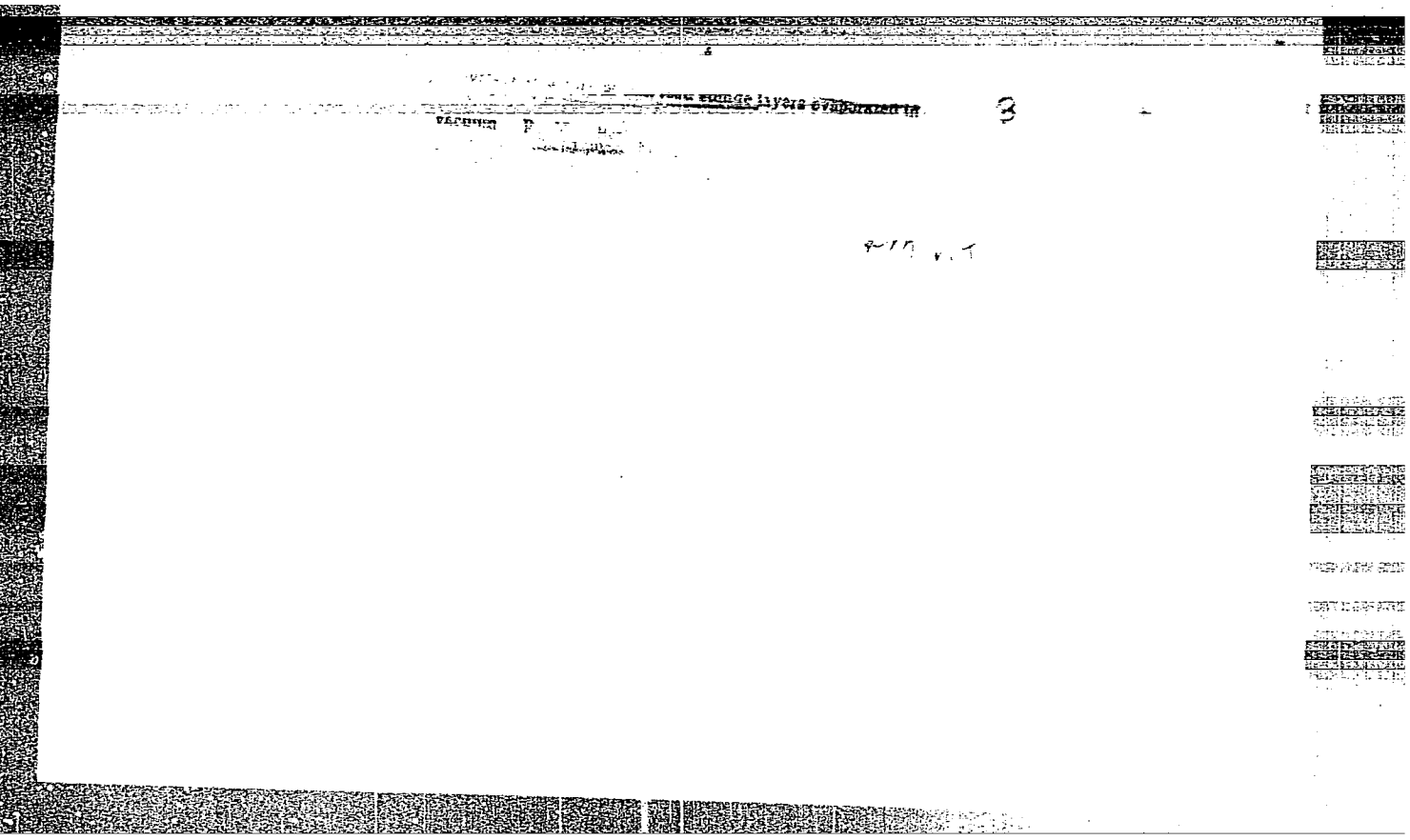

BERLAGA, R. YA.

USSR/Physical Chemistry - Crystals, B-5

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 60931

Author: Berlaga, R. Ya., Rudenok, M. I., Strakhov, L. P.

Institution: None

Title: On Structure of Thin Layers of PbS Produced by Evaporation in Vacuum

Original Periodical: Zh. tekhn. fiziki, 1956, 26, No 1, 3-5

Abstract: Electron microscopic investigations of sublimated layers of PbS (I) (Referat Zhur - Khimiya, 1956, 50034) show that surface of I layer is covered with needle crystals the axes of which are directed approximately parallel to the molecular cluster on sublimation of I. Length of crystals varies from 0.2 to 8 μ although conditions of sublimation are the same. Layers with short crystals have a mirror surface, those with longer crystals a dull surface. After heating in air at 700° shape of crystals is changed which is attributed to formation of lanarkite $PbO \cdot PbSO_4$. Investigations of reflecting

Card 1/2

USSR/Physical Chemistry - Crystals, B-5

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 60931

Abstract: power of I layer under different angles show that directions of maximum and minimum reflection are within the plane of molecular cluster.

Card 2/2

AUTHOR BERLAGA,R.Ya., RUMSH,M.A., StRAKHOV,L.P. PA - 2588

TITLE Generation of photo-EMF in Layers of Sulphurous Lead.
(Vozniknoveniye fotoeds v sloyakh sernistogo svintsa - Russian)

PERIODICAL Radiotekhnika i Elektronika, 1957, Vol 2, Nr 3, pp 287-29o (U.S.S.R.)

Received 5/1957 Reviewed 6/1957

ABSTRACT Lecture delivered at the All Union Conference for Semiconductors in November 1955 at Leningrad. The Photoelectromotoric force in the layers of PbS which had been sujected to no treatment whatever that would have caused an alignment of properties was investigated. The layers were obtained by evaporation of PbS in the vacuum on a flat glass basex plate. After being heated in the atmosphere up to 5oo - 55o°C the layers generated a photo-electromotoric force of up to 2-3 V when illuminated by an ordinary incandescent lampl Investigation of layers of different thickness showed that an increase of the layer causes orientation of the crystals with an orientation axis directed along the molecular flow (by means of which the layer is applied). Together with the development of texture thin protrusions are produced on the surface of the layer. The needle-shaped structure of the surface plays an impotant and possibly even decisive part in connection with the generation of photoelectromotoric force. In this connection several more or less probable developments may be assumed : 1. The photo-EMF might be generated on the illuminated dendrite edges by the exterior photoeffect. 2. It might be assumed that the photo-EMF generated in the PbS layers is due the interior photoeffect. 3. It may be assumed that what takes place on the occasion of the genera-

Card 1/2

Generation of photo-EMF in Layers of Sulphurous Lead PA - 2588

tion of the photo-EMF is connected with the production of p-n transitions between the oxidized surface layer of the dendrite and its not oxidized central mass. This manner of generation of photo-EMF, which, in the authors opinion is the most probable, will agree with the rule found with respect to signs if the illumination of the oxidized PbS surface leads to a reduction of the potential of the surface layer with respect to the interior not oxidized part.
(5 ill. and 6 citations from publications in Slav language).

ASSOCIATION
PRESENTED BY
SUBMITTED
AVAILABLE Library of Congress
Card 2/2

AUTHORS: Berlaga, P. Ya., Candidate o. Physical and Mathematical Sciences, Berzn.., V. N., Candidate of Physical and Mathematical Sciences, Lebedev, A. A., Academician. 32-1o-18/32

TITLE: Electron Microscopy in the Soviet Union (Elektronnaya mikroskopiya v Sovetskom Soyuze)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol 23, Nr 1o, pp 1214-1219 (USSR)

ABSTRACT: Both the development and the latest achievements of electron microscopy are described in the introduction by drawing special attention to the successes achieved in England (Menter) where the crystalline lattice with intercrystalline distances was immediately observed for the first time. In the chapter: The claborate studies for manufacturing a Soviet electron microscope it is stated that the first electron microscopes constructed by Lebedev were produced in 1945 and that they were later (1949) to industrial purposesby M. Ivanov under the trade mark " M-3". The further developed instruments " M-3M" which, among others, were also equipped with electronographic accessories for electronic graph recording in the transitory and reflected rays and which allow an enlargement up to the 4o.ooo fold, were produced for the first time in 1953. Ultimate preparations are made at present for the production of the latest Soviet electron microscope "YM5-1oo" which"should be equal" to the

Card 1/3

best foreign models. Its technical data will be: 2oA at an accelerating voltage of 5o, 75 and 1oo KW, constructed by V. Polivanov, P. Stoyanov, and G. Mikhaylovskiy. The latest type of the electron miroscope " M-3" at 25 A and continously increasing enlargement of 1ooo to 5oooo times at 4o, 5o, 6o KW, is also already being produced; it will make it possible to achieve a microdiphraction in transitory electron rays, to carry out an electronic graph, and to make sterescopic photographs. Yanchevskiy, K. Milyutin, V. and Fetisov, D., after many years of research, also completed other plans for further electron-microscopes among which are " CM-6o" and "M CM-4o" of 6o and 4o KW at δ_1- 5o A, and δ_2=6o A. Moreover, an emission electron microscope" M-75" with δ=5oo A and 75 KW, as well as a series of other microscopes were elaborated for special purposes (electron emission) by Rozebfel'd A., P. Zaytsev, and Yu. Zolotarenko. In the chapter: Electron-microscopical elaborate investigations it is stated that there are actually more than 4oo electron microscopes in operation in the USSR, which is much fewer than in the U.S.A. where approximately 5oo of these apparatus exist. Variations of elaborate investigations on cathodes, their activation, phenomena of migration and adsorption are described and mentioned in this chapter. Eventually the application of electron pro-

Electron Microscopy in the Soviet Union. 32-1o-18/32

jectors which allow a 2 million-fold enlargement (spherical projector) is practised. Electron microscopy is applied in the USSR in the fields of metallography, geology, biology, bacteriology, and medicine. (Examples are given).

AVAILABLE: Library of Congress

1. Electron microscopy-USSR 2. Electron microscopy-Development
3. Electron microscopy-Application

Card 3/3

AUTHORS: Berlaga, R. Ya., Chechurin, S. N. 57-28-6-7/34

TITLE: Photoresistances Made From Tellurium Oxide (Fotosoprotivleniya iz okisi tellura)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 6, pp. 1174-1176 (USSR)

ABSTRACT: In the present paper a method of producing sensitive films TeO_2 by the sublimation of tellurium oxide in a vacuum is described. Films with a specific resistance of up to 10^9 ohm·cm and a photosensitivity of up to 20 % were obtained at a light of 5 lux (room temperature). The minimum light recorded amounted to 1 - 2 lux with a width of the amplifier band of 100 kc. The maximum of spectral sensitivity of the layers was about 0,8 μ. The light limit of the wave was about 1,8 μ. In all photoresistances investigated the same rules by which processes are governed were found to exist. Specific resistance fluctuated between 10^7 and 10^9 ohms.cm. The typical curves of the temperature dependence of dark

Card 1/3

current for samples with different specific resistance are shown (figure 1). The width of the forbidden zone ΔE, which was calculated according to the temperature dependence of conductivity, amounted to 1.1, 1.1, 1.50 V respectively for the three samples. Variations of σ and $\Delta\sigma$ were reversible in the case of heating of the photoresistances up to a temperature of 80°C in the air and up to 40 - 50°C in a vacuum. The temperature dependence of the photosensitivity $\frac{\Delta\sigma}{\sigma}$ and of the photocurrent Δ_{if} for one of the samples is shown (figure 2). The photosensitivity of all three samples increased with a drop of temperature. The dependence of the photocurrent on the intensity of light was of nonlinear character in the case of a light intensity of more than 10 lux for films with the specific resistance 10^8 - 10^9 ohm.cm. It is shown (figure 3) that with increasing conductivity of the film the maximum of the photocurrent is shifted into the range of long waves. The sign of the dark- and photocurrent carriers corresponded to p-type conductivity. The average level of photoresistance noises in the frequency interval

of from 100 c to 100 kc amounted to 8 - 9 microvolts per 1 V of the applied voltage. The dependence of the electromotive force of the noises on the voltage was linear. Electrographical investigations of tellurium oxide films showed no signs of crystal rings. These investigations were carried out by M. A. Rumsh. The authors thank A. A. Lebedev, Member of the Academy of Sciences of the USSR for his valuable advice. There are 3 figures.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: September 27, 1957

1. Tellurium oxide films—Preparation 2. Tellurium oxide films—Sensitivity 3. Tellurium oxide films—Electrical properties 4. Tellurium oxides—Sublimation 5. Tellurium oxides—Test results

BERLAGA, R.Ya.; NOVIK, F.T.; STRAKHOV, L.P.

Production of lead sulfide photoresistors by chemical precipitation. Fiz. tver. tela 1 no.6:995-996 Je '59. (MIRA 12:10)

1. Problemnaya laboratoriya poluprovodnikov Lengosuniversiteta.
(Lead sulfide) (Photoelectricity)

AUTHOR: Berlaga, R. Ya.

SOV/48-23-6-3/28

TITLE: The Structure and the Photoelectric Properties of Lead Sulfite Layers (Struktura i fotoelektricheskiye svoystva sernisto-svintsovykh sloyev)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 6, pp 676 - 679 (USSR)

ABSTRACT: In the introduction earlier papers dealing with the photoelectrical properties of lead sulfite layers (Refs 1,2,3) are discussed, and the dependence of the photo-electromotive force on the atmosphere in which the layer was vaporized is described. The influence of thermal treatment of such layers is discussed, and the dependence of the photo-electromotive force of thermally treated layers of the direction of the light beam is explained. Electronographic investigations showed that these layers have a known structure. In the present paper the properties are investigated in dependence on the velocity of spray-coating, the thickness of the layer, and the direction of the beam. The layers are vaporized at an air pressure of 10^{-4} torr, thermal treatment was carried out at 550 - 600°C in air. The results obtained by the experiments show a dependence of the formation of the surface and the photoelectric properties. The latter is shown

Card 1/2

by 6 images (Fig 1). It was found in this connection that the highest electromotive force is that of such layers as are inclined at an angle of 60° towards the horizon. The connection between electromotive force and layer thickness is shown by means of a diagram, and a further diagram shows the dependence of photoconductivity on layer thickness. Both have maxima at $d \approx 1\mu$. Finally, the author thanks M. I. Rudenok, N. Voronkova, and V. Piotrovich for their assistance, and A. A. Lebedev for discussions. There are 3 figures and 4 references, 3 of which are Soviet.

9.4300
26.2421

87908

S/181/60/002/012/008/015
B006/B063

AUTHORS: Berlaga, R. Ya. and Bykova, T. T.

TITLE: Effect of Oxygen Adsorption on the Photoelectromotive Force of Lead-sulfide Layers

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 12, pp. 3045-3047

TEXT: The occurrence of a photo-emf in polycrystalline PbS layers was discovered by Berlaga, M. A. Rumsh, and L. P. Strakhov (Ref. 1). The photocell consisted of a glass backing on which a PbS layer and graphite electrodes had been sputtered. After a heat treatment in air, the photo-emf increased sharply from some thousandths of volts up to 3 v and depended on the direction of the light ray. Now the authors have studied the effect of oxygen adsorption on the photo-emf of a cell in a glass flask. The internal air pressure could be varied from atmospheric pressure to 10^{-6} mm Hg, and the temperature of the photolayer from room temperature to several hundred °C. It was found that between 20° and 200°C, the air adsorbed on the layer has a reversible effect on the photo-emf. Sorption and desorption of oxygen changed resistivity much the same as the photo-emf

Card 1/3

87908

Effect of Oxygen Adsorption on the Photo-electromotive Force of Lead-sulfide Layers

S/181/60/002/012/008/018
B006/B063

Study of the variation of photo-emf and resistivity as dependent on the deaeration time showed that both photo-emf and resistivity become constant after a deaeration time of 20-60 min. p-type layers differ from n-type layers in that the photo-emf and resistivity of the latter are reversibly reduced by deaeration down to 1/1000. p-type specimens undergoing deaeration first show increasing photo-emf and resistivity, which decrease again after passing through a maximum where their conductivity goes over into n-type one. The experiments are interpreted as follows: The sputtered layer is composed of microcrystals and has n-type conductivity. When the layer is sensitized, its conductivity changes to p-type or remains n-type, depending on the quantity of adsorbed oxygen. This is ascribed to the fact that p-junctions may appear on the microcrystals, which may also be held responsible for the occurrence of photo-emf. The authors thank Academician A. A. Lebedev for comments and discussions, and the student Ye. Pivovarova for assistance in experiments. There are 3 figures and 3 references: 2 Soviet and 1 British.

Card 2/3

87903

Effect of Oxygen Adsorption on the Photo-electromotive Force of Lead-sulfide Layers

S/181/60/002/012/009/018
B006/B063

ASSOCIATION: Leningradskiy gosudarstvennyy universitet, Nauchno-issledovatel'skiy fizicheskiy Institut, Problemnaya laboratoriya poluprovodnikov (Leningrad State University, Scientific Research Institute of Physics, Laboratory for Semiconductor Problems)

SUBMITTED: April 28, 1960

Card 3/3

BERLAGA, R.Ya.; BYKOVA, T.T.

Effect of absorbed oxygen on the photo-e.m.f. of lead sulfide layers. Fiz. tver. tela 3 no. 12:3045-3047 D '60. (MIRA 14:2)

1. Leningradskiy gosudarstvennyy universitet, Nauchno-issledovatel'skiy fizicheskiy institut, Problemnaya laboratoriya poluprovodnikov.
(Lead sulfide—Electric properties)

18.9100 1145 1454

S/181/61/003/002/042/050
B102/B201

AUTHORS: Berlaga, R. Ya. and Rudenok, M. I.

TITLE: Production of replicas from cross sections of thin layers

PERIODICAL: Fizika tverdogo tela, v. 3, no. 2, 1961, 625-626

TEXT: The authors have devised a method of obtaining pictures of cross sections of a layer without having to use a microtome, thus making it possible to intercompare the inner and surface structures of the layer. This method is above all of interest because of the difficulty one encounters in obtaining ultramicrotomic sections of the order of hundred angstroms, which are required for electron microscopy. The method consists in the following procedure: a PbS layer is evaporated in vacuo over a glass base which is then broken together with the layer, and, first an aluminum layer of 100-200 A, and then a carbon film are, again by vacuum evaporation, applied to the fissure. The carbon film covers both the fissure of the layer and the adjoining surface. The aluminum layer is then detached with hydrochloric acid, and the carbon film thus laid bare is stretched on a net after having been carefully washed, and is examined in

the electron microscope. It is thus possible simultaneously to observe surface and cross section. A few of such pictures are shown (not reproducible). From a great number of such pictures the authors draw the conclusion that, in general, the direction of crystal growth coincides with the direction of the molecule beam. While examining the photo-emf appearing in PbS layers, the authors discovered, by means of an electron microscope, certain crystalline structures on the layer surface, whose axes coincided with the molecule beam direction. Both the replica method and the method of recording the profile were applied in this connection. Academician A. A. Lebedev is thanked for his interest and advice. There are 2 figures and 7 references: 5 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Fizicheskiy fakul'tet Leningradskogo gosudarstvennogo universiteta (Division of Physics of Leningrad State University). Problemnaya laboratoriya poluprovodnikov (Special Research Laboratory for Semiconductors)

SUBMITTED: July 4, 1960

S/109/61/006/008/012/018
D207/D304

9,4300

AUTHORS: Berlaga, R.Ya., Konorov, P.P., and Rudenok, M.I.

TITLE: Electron microscopic study of the germanium surface

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 8, 1961, 1370 - 1373

TEXT: This paper was presented at the 3rd All-Union Conference on the electron microscopy, Leningrad, October 1960. In the present article the authors present the results of electron microscopic studies of a germanium surface. The germanium samples were crystals of n and p types with intrinsic resistance of the order of a few ohm. cm., cut along the (111) axis. The study was made with the use of a type ЭМ-3 (EM-3) electron microscope, magnifying 5,500 times. The crystal samples were prepared by the three most common methods: mechanical polishing with emery powder; etching in 30 % H_2O_2; and etching in standard etching fluid CP-4 (SR-4) (50 cc HNO_3, 30 cc

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Electron microscopic study ...

CH_3COOH, 30 cc HF and 0.6 cc Br). The diffusion length of samples treated by SR-4 was 0.08-0.1 and 0.3 mm. When etched with hydrogen peroxide the surface structure varied according to whether the etching had been done directly after polishing or after treatment with SR-4. The diffusion length after H_2O_2 etching was found to be 0.22 mm and independent of previous treatment. The action of the separate components of SR-4 was investigated, namely HNO_3 and HF. Prior to treatment with HF germanium was either polished or etched in SR-4. In treatment with HF it was found that in each case both the surface structure and the diffusion length remained unchanged. When treated with 63 % HNO_3 for 20 minutes, after being first etched with SR-4, the surface was found to be non-uniform, which is thought to be due to formation of an uneven film of the hexagonal modification of germanium dioxide. When the germanium surface was treated with SR-4 first and then with HNO_3, a large spread from 0.07 to 0.2 mm in the diffusion length of current carried was ob-

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served. This decrease, compared with the lengths in the standard SR-4 treatment is thought to be due to the formation of an oxide surface layer with subsequent irregularities formed by it at the surface. In conclusion results of preliminary studies of a germanium surface are given when treated with special etching fluids: etching fluid No. 8 (20 cc HNO_3 and 10 cc HF) which reduces to a minimum the oxide formation and dissolves the dioxide; and etching fluid No. 5 (40 cc HF, 6 cc H_2O_2 with 24 cc H_2O), used to obtain a layer of monoxide at the surface. For No. 8 the state of the surface and diffusion length differed little from that obtained with SR-4 etching. After No. 5 treatment a more or less even layer of oxide is formed with the diffusion length increased to 0.5 - 0.7mm. There are 5 figures.

SUBMITTED: February 7, 1961

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BERLAGA, R.Ya.; RUDENOK, M.I.

Structure and electromotive force of photovoltaic layers of lead sulfide produced by sublimation under vacuum. Izv.AN SSSR.Ser.fiz. 25 no.6:739-741 Je '61. (MIRA 14:6)
(Electromotive force) (Photoelectricity)
(Lead sulfide—Electrical properties)

409c

24.7000
26.2420

S/181/62/004/009/045/045
B104/B186

AUTHORS: Berlaga, R. Ya., and Bykova, T. T.

TITLE: Change of the surface potential of lead sulfide layers under irradiation

PERIODICAL: Fizika tverdogo tela, v. 4, no. 9, 1962, 2629-2631

TEXT: The change of the surface potential of polycrystalline lead sulfide layers under irradiation ($0.6 \leq \lambda \leq 1.6\mu$) was determined by measuring the changes in the contact potential differences ΔP between PbS and a standard electrode under modulated irradiation. The PbS layers were applied to glass backings by spray coating. Previously, a semitransparent SnO_2 layer had been applied to these backings as the lower electrode. A semitransparent SnO_2 layer, applied to glass or quartz, was used as a standard electrode. The changes in ΔP were brought about in specimens not subjected to heat treatment and in specimens previously annealed in air for 10-30 min at 400-450°C. Under irradiation, no changes in ΔP were observed in specimens not subjected to heat treatment. In annealed

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specimens ΔP attained several hundred microvolts. ΔP of freshly sprayed layers depends exponentially on the irradiation intensity. ΔP of annealed specimens depends linearly on the intensity. Heat treatment displaces the spectral distribution of ΔP to longer waves. An effect of the surrounding medium was observed especially in freshly sprayed layers. Hence, it is concluded that the change in ΔP on irradiation is associated with modulations of the surface barriers. There are 2 figures.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: April 4, 1962 (initially)
June 4, 1962 (after revision)

ADAMCHUK, V.K.; BERLAGA, R.Ya.

Current induced photo-emf in lead sulfide layers. Fiz. tver. tela 4 no.9:2382-2384 S '62. (MIRA 15:9)

1. Leningradskiy gosudarstvennyy universitet.
(Photoelectricity) (Lead sulfide)

Berlaga, R. Ya.

AID Nr. 957-11 2 May

EFFECT OF ION BOMBARDMENT ON THE ELECTRIC AND PHOTOELECTRIC PROPERTIES OF LEAD SULFIDE (USSR)

Artamonov, O. M., R. Ya. Berlaga, and M. G. Vinogradov. Fizika tverdogo tela, v. 5, no. 3, Mar 1963, 959-961. S/181/63/005/003/044/046

Variations in the conductivity, photoconductivity, and thermal emf of surface PbS layers have been measured during ion bombardment. Ion-bombardment energy was of the order of 100 to 400 ev, and the ion current was 10^{-6} to 10^{-8} amp. Layer conductivity was measured with a high-range ohmmeter. Photoconductivity was measured at modulated illumination with the use of a tuned amplifier. The dimensions of the layers were 0.5 x 1.0 cm. Measurements of a layer ~ 0.6 μ thick during argon ion bombardment showed by thermal-emf sign that the layers had hole conductivity. With the passage of the layer-resistance--bombardment-time curve through the first maximum the sign changed and the layers acquired electron conductivity. In the falling sector of the curve

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AID Nr. 957-11 2 May

EFFECT OF ION [Cont'd]

S/181/63/005/003/044/046

resistance showed a hyperbolic dependence on time. Following bombardment for ~ 10 min, the resistance decreased and remained unchanged during an additional 10 hours of bombardment. With the removal of the ion beam the resistance increased. The reversibility of the processes causing variations in layer conductivity were found to depend on ion-bombardment time: during short exposures the process is to a large degree reversible, whereas after a long bombardment the original properties could be restored only following annealing in the open air. With the application of the ion beam, photoconductivity sharply decreases and after a long exposure disappears completely; it can be restored only after repeated heating in the open air. Bombardment by ions of various gases (hydrogen, oxygen, argon) made no qualitative difference. [DW]

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BERLAGA, R.Ya.; BOL'SHAKOV, L.P.; KONOROV, P.P.; RUDENOK, M.I.

Structure of and recombination on a thermally oxidized germanium surface. Fiz. tver. tela 5 no.10:2990-2996 O '63. (MIRA 16:11)

1. Leningradskiy gosudarstvenny universitet.

L 11385-63 BDS

S/120/63/000/002/031/041

45

AUTHOR: Artamonov, O. M., and Berlaga, R. Ya.

TITLE: A dynamic capacitor for investigating variations in surface potentials

PERIODICAL: Pribory i tekhnika eksperimenta, March-April 1963, v. 8, no. 2, 151-152

TEXT: The article describes the design of a dynamic capacitor for investigating variations in the surface potentials of semiconductors. The instrument is designed to permit measurement of both ordinary contact potentials and potential variations due to illumination. While the measurement accuracy is to within 50 mv, the time constant of the measurement circuit is rather large, so that the circuit is useful primarily for measurements of surface potentials that vary slowly. There are two figures.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: May 26, 1962

Card 1/1 ja/lb

ARTAMONOV, O.M.; BERLAGA, R.Ya.; BYKOVA, T.T.

Changes in the surface potential of lead sulfide films due to illumination. Vest. LGU 18 no.4:41-46 '63. (MIRA 16:3)
(Lead sulfide) (Photoelectricity)

ACCESSION NR: AP4004848 S/0181/63/005/012/3435/3438

AUTHORS: Berlaga, R. Ya.; Vinokurov, I. V.; Konorov, P. P.

TITLE: Electrical properties of PbS monocrystalline and polycrystalline layers

SOURCE: Fizika tverdogo tela, v. 5, no. 12, 1963, 3435-3438

TOPIC TAGS: lead sulfide, monocrystalline lead sulfide, polycrystalline lead sulfide, monocrystal, lead sulfide layer, polycrystal, electric property, single crystal

ABSTRACT: The authors studied electrical conductivities, Hall effects, and the thermoelectromotive force of polycrystalline and monocrystalline layers of PbS in order to determine the effect of crystalline interlayers and potential barriers on these properties. The PbS samples were activated by being heated at 600C in air for several minutes. The monocrystalline layers did not acquire any appreciable photosensitivity after heating. Their conductivity sign (determined from the sign of thermoelectromotive force) corresponded to p-type conductivity for some layers and to n-type conductivity for other layers. The polycrystalline layers always had n-conductivity before the sensitization and underwent a partial change to the p-conductivity after sensitization. It was established that in the activated

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ACCESSION NR: AP4004848

polycrystalline layers the Hall emf was determined by the barriers between the grains in the layer and the thermo-emf corresponded to the properties of grain volumes. This was attributed to the fact that the Hall effect was caused by continuous current through the sample, while the thermo-emf was caused by the diffusion of current carriers in separate crystals. Exponential growth of conductivity with the increase in temperature was observed in the activated polycrystalline layers. The strength of potential barriers was 0.12 - 0.14 ev. "In conclusion we express our appreciation to T. T. By*kova, L. P. Strakhov and O. M. Artamonov for useful discussions." Orig. art. has: 1 table.

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet (Leningrad State University)

SUBMITTED: 20Jun63 DATE ACQ: 03Jan64 ENCL: 00

SUB CODE: PH NO SOV REF: 001 OTHER: 005

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